

## Abstract Submitted

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**Temperature Dependence of the Optical and Electrical Properties of  
 Light Emitting Conjugated Polymers**

T. W. Hagler<sup>1</sup>, K. Pakbaz<sup>1</sup>, H. B. Radousky<sup>1</sup>, H. W. H. Lee<sup>1</sup>, I. H. Campbell<sup>2</sup> and J. P. Ferraris<sup>3</sup> <sup>1</sup>Lawrence Livermore National Laboratory, Livermore, CA 94551, <sup>2</sup>Los Alamos National Laboratory, Los Alamos, NM 87545, <sup>3</sup>The University of Texas at Dallas, Richardson, TX 75080 -- We present the temperature dependence of the electroabsorption, photoconductivity and thermally stimulated current of the light emitting conjugated polymer MEH-PPV between 10K and 350K. The data demonstrate that the  $\pi$ - $\pi^*$  transition energy of MEH-PPV is strongly temperature dependent, increasing by more than 130 meV over the 10K to 350K range. In addition to the thermochromic shift, we observe dramatic changes in the vibronic structure of the electroabsorption spectrum which are commensurate with the activation of thermally stimulated current and c.w. photoconductivity. These results suggest that a significant change in microscopic polymer morphology is associated with macroscopic charge transport in this class of materials.

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